

NOTES ON BROMELIACEAE, XI

Lyman B. Smith

DOMINICAN REPUBLIC

TILLANDSIA ARIZA-JULIAE L. B. Smith & Jiménez, sp. nov.

A *T. bulbosa* Hook., cui affinis, laminis foliorum subrectis, scapi bracteis supremis sine laminis, sepalis majoribus densissime lepidotis differt.

Stemless, 19 cm. high; leaves about 12, covered with fine closely appressed cinereous scales; sheaths orbicular, abruptly contracted into the blades, greatly inflated, 3-4 cm. long, forming a dense ovoid pseudobulb, green tinged with purple near the margin; blades involute-subulate, acuminate, strict, nearly straight, to 9 cm. long, 2-4 mm. in diameter; scape erect; scape-bracts imbricate, the lower subfoliaceous, the highest broadly ovate, apiculate, subchartaceous; inflorescence simple or few-branched; spike lanceolate, acute, complanate, 8 cm. long, rather lax, including the sepals densely vestite with appressed cinereous scales; rhachis slender, slightly alate; floral bracts imbricate at anthesis, ovate, acute, 30 mm. long, more than 3 times as long as the internodes, ecarinate, subchartaceous, nerved; flowers subsessile; sepals oblong, apiculate, 20 mm. long, posteriorly short-connate; petals tubular-erect, purple; stamens exserted; capsule slenderly cylindric, 3 cm. long. Pl. I, fig. 1: Inflorescence x 1/2; fig. 2: Sepal x 1.

Type in the U. S. National Herbarium, No. 2,228,156, collected on *Pinus occidentalis* Sw. near Hotel Montana, between La Vega and Jarabacoa, Province of La Vega, Dominican Republic, altitude 500 meters, April 3, 1958, by Luis Ariza Julia and flowered in his garden in May 1958. Isotype in Herbarium of José de Js. Jiménez.

COLOMBIA

GUZMANIA DELICATULA L. B. Smith, sp. nov.

Ab omnibus speciebus generis foliis gramineis cum inflorescentia laxissime paniculata differt.

Stemless (?), the flowering shoot 45 cm. high; leaves subfasciculate, 8 dm. long, obscurely punctulate-lepidote; sheaths narrowly ovate, 12 cm. long, finely striate except for the dark castaneous base; blades graminiform, 15 mm. wide, flat, acuminate, green with broad pale margins beneath; scape erect, very slender, hidden by the leaves; scape-bracts linear, caudate-acuminate, exceeding the internodes; inflorescence bipinnate, very lax, 15 cm. long, glabrous except for the obscurely lepidote apices of the bracts; lower primary bracts like the scape-bracts, exceeding the branches, the upper ovate, apiculate, about equaling the sterile bases of the branches; branches subspreading, laxly few-flowered, slender, flexuous; floral bracts ovate, broadly acute, 8-12 mm. long, ecarinate, thin, nerved; flowers spreading; pedicels distinct, 6-8 mm. long; sepals spatulate, ob-

tuse, 16 mm. long, unequally short-connate; petals naked; stamens included. Pl. I, fig. 3: Branch x 1; fig. 4: Sepal x 1.

Type in the Naturhistoriska Riksmuseet, Stockholm, collected at La Selva, Pueblo Rico, Department of Caldas, Colombia, altitude 1500 meters, January 28, 1946, by Kjell von Sneidern (No. 5391).

PITCAIRNIA SNEIDERNII L. B. Smith, sp. nov.

A *P. volubilis* L. B. Smith, cui affinis, foliis majoribus longe petiolatis, inflorescentia subdensa, floribus minoribus differt.

Stem over 12 cm. long, 5 mm. in diameter, dark castaneous, covered with the remains of old leaf-bases; flowering shoot 45 cm. high; leaves apparently all alike; sheaths ovate, 15 mm. long, pale-lepidote; petioles 19-30 cm. long, very slender, involute, glabrous, laxly serrate toward base with slender curved dark spines 1.5 mm. long; blades elliptic, cuneate, rounded to a short narrowly triangular apex, 30-33 cm. long, 8 cm. wide, glabrous, entire, flat except for a narrow median channel toward base; scape straight, slender, 30 cm. long, sparsely white-flocculose; scape-bracts erect and tightly enfolding the scape, lanceolate, acuminate, membranaceous, entire, sparsely white-lepidote, the lowest 14 cm. long; inflorescence simple, 15 cm. long, subdense, many-flowered, sparsely white-lepidote; rhachis slender; floral bracts linear-lanceolate, acuminate, to 15 mm. long, thin, reflexed with the flowers; pedicels slender, 5 mm. long; sepals narrowly triangular, acuminate, 15 mm. long, ecarinate; petals 20 mm. long, naked, color unknown; stamens included; ovary over 2/3 superior; ovules caudate. Pl. I, fig. 5: Leaf x 1/10; fig. 6: Flower x 1; fig. 7: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected at Pueblo Rico, La Selva, Department of Caldas, Colombia, altitude 1500 meters, January 4, 1946, by Kjell von Sneidern (No. 5371).

ECUADOR

AECHMEA ABBREVIATA L. B. Smith, sp. nov.

A *Ae. angustifolia* Poepp. & Endl., cui valde affinis, laminis foliorum tenuibus basi angustatis, inflorescentia pauciramosa subdigitata, rhachibus spicarum gracilibus haud vel vix excavatis differt.

Stemless, propagating by slender stolons, the flowering shoot 30-47 cm. high; leaves about 9 in a funnelform rosette, 35-60 cm. long; subdensely vestite on both sides with coarse white appressed scales, subchartaceous when dry; sheaths elliptic, 6-10 cm. long, entire; blades ligulate, subacute and apiculate, narrowed at base but not petiolate, 25-35 mm. wide, flat, laxly serrate with slender spreading spines from 3 mm. long at the base of the leaf to almost imperceptible near the apex; scape erect, very slender, white-flocculose; scape-bracts lanceolate, acute, obscurely serrulate, membranaceous, red, all but the high-

est remote; inflorescence 5-branched, subdigitate with a short slender axis, sparsely white-flocculose; primary bracts like the scape-bracts but entire, the lowest nearly equaling the spikes; spikes oblong, densely distichous-flowered, to 4 cm. long; rachis slender, flexuous, little if at all excavated; floral bracts broadly ovate, 4 mm. long; flowers sessile; sepals asymmetric with a minute terminal mucro, oblong, truncate, 4.5 mm. long; petals narrowly spatulate, obtuse, 15 mm. long, pale yellow except for the white apical third, bearing 2 long fimbriate scales at base; ovary subglobose, 6 mm. long, the epigynous tube shallow but distinct; placentae apical; ovules caudate. Pl. I, fig. 8: Leaf x 1/10; fig. 9: Inflorescence x 1/2; fig. 10: Spike x 1; fig. 11: Sepal x 2; fig. 12: Petal x 2.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on tree trunk in forest, Mera, Province of Napo-Pastaza, Ecuador, altitude ca. 1000 meters, November 17, 1955, by E. Asplund (No. 18472)

ECUADOR: Napo-Pastaza: Epiphytic in forest, near Rio Tigre, Mera, alt. 1100 m., Asplund 18573 (S).

AECHMEA STROBILACEA L. B. Smith, sp. nov.

A Ae. rubiginosa Mez, cui affinis, bracteis florigeris elongatis valde recurvatis, sepalis majoribus differt.

Leaves rosulate, over 2 meters long, covered beneath with appressed ferruginous scales, very laxly serrate toward base with retrorse curved teeth 4 mm. long, densely antrorse-serrulate toward apex; sheaths elliptic, ca. 15 cm. long; blades linear, acuminate, 55 mm. wide, flat; scape erect, not much over 10 cm. high, stout; scape-bracts erect, densely imbricate, ovate, acute, densely serrulate; inflorescence simple, strobilate, short-cylindric, 15 cm. long, 12 cm. in diameter, densely ferruginous-lepidote; floral bracts lance-triangular, long-acuminate, over 7 cm. long, densely serrulate, dull red, the apical part reflexed; flowers sessile, strongly compressed; sepals lance-triangular, subulate-acuminate, pungent, 36 mm. long, subequally short-connate, the posterior ones sharply carinate with the wings continuous on the ovary; petals and stamens unknown; ovary suborbicular, the epigynous tube broadly funnelform, 5 mm. deep; seeds flat, broadly elliptic, 8 mm. long. Pl. I, fig. 13: Floral bract x 1; fig. 14: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on ground in forest, Vera Cruz, Province of Napo-Pastaza, Ecuador, altitude ca. 900 meters, February 18, 1956, by E. Asplund (No. 19480).

GUZMANIA AEQUATORIALIS L. B. Smith, sp. nov.

A G. calamifolia André ex Mez, cui affinis, foliis breviter acutis, inflorescentia omnino densa, bracteis latioribus spicas haud superantibus, sepalis altiore connatis differt.

Stemless, flowering over 45 cm. high; leaves about 20 in an infundibuliform rosette, 45 cm. long, obscurely punctulate-lepidote throughout; sheaths elliptic, 10 cm. long, slightly paler

than the blades; blades ligulate, acute, 4 cm. wide, green suffused with purple; scape erect, 6 mm. in diameter, scape-bracts erect, imbricate, closely enfolding the scape, the lower subfoliaceous, the upper with broadly ovate purple-striped base and triangular solid purple apex; inflorescence densely bipinnate, subglobose, 7 cm. long, very obscurely punctulate-lepidote, appearing glabrous; primary bracts like the upper scape-bracts, shorter than the axillary branches; spikes ellipsoid, stout, 4 cm. long, strobilate; floral bracts suborbicular, to 17 mm. long, exceeding the sepals, subcoriaceous and smooth, lustrous; flowers subsessile; sepals elliptic, obtuse, 14 mm. long, connate for 5 mm., nerved; petals white, the blades elliptic, 12 mm. long; stamens included. Pl. I, fig. 15: Apex of leaf $\times 1/2$; fig. 16: Spike $\times 1/2$; fig. 17: Flower $\times 1$; fig. 18: Sepal $\times 1$.

Type in the U. S. National Herbarium, No. 2,266,421, collected on a mountain near Loja, Province of Loja, Ecuador, altitude 2700 meters, in 1956, by H. Teuscher (No. 2017-56) and flowered in the Montréal Botanical Garden, May 1958.

GUZMANIA ASPLUNDII L. B. Smith, sp. nov.

A *G. calamifolia* André ex Mez, cui affinis, inflorescentia folias superante, scapi bracteis supremis internodia vix vel haud superantibus, bracteis florigeris sublaevibus lepidotis differt.

Stemless or short-caulescent, flowering 8-10 dm. high; leaves 6-8 dm. long; sheaths narrowly ovate, 10-15 cm. long, covered with appressed brownish scales, dark castaneous toward base, red-striate above; blades linear, acuminate, flat, 15 mm. wide, green, concolorous, obscurely lepidote; scape erect, slender, lepidote becoming glabrous; scape-bracts erect, lepidote, the lower foliaceous and densely imbricate, the upper lanceolate, caudate-acuminate, equaling or slightly exceeding the internodes; inflorescence laxly bipinnate from 5-12 spikes, 12-23 cm. long; axis straight or flexuous; primary bracts ovate, the lower ones acuminate and about half as long as the spikes, the upper apiculate and much shorter; spikes divergent to subspreading, very short-stipitate, strobilate, fusiform, acuminate, 5 cm. long, 1 cm. in diameter; floral bracts elliptic, obtuse, 18 mm. long, convex, ecarinate, subcoriaceous except for the brownish membranaceous margin, appressed-lepidote, pale green with a brown base; flowers subsessile; sepals oblong-obovate, acute, 14 mm. long, subequally short-connate; petals naked, pale green with brown margins (! Asplund); stamens included. Pl. I, fig. 19: Apex of leaf $\times 1/2$; fig. 20: Spike $\times 1/2$; fig. 21: Sepal $\times 1$.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on rotten log in rastrojo, Mera, Province of Napo-Pastaza, Ecuador, altitude ca. 1050 meters, November 17, 1955, by E. Asplund (No. 18488).

ECUADOR: Napo-Pastaza: Forest near Mangayacu, Mera, alt. 1100 m., Dec. 6, 1955, Asplund 18704 (S). In rastrojo, Mera, alt. 1100 m., Feb. 16, 1956, Asplund 19408 (S).

GUZMANIA BIPARTITA L. B. Smith, sp. nov.

A G. cylindrica L. B. Smith, cujus spicam bracteasque valde imitans, inflorescentia biramosa, sepalis minoribus atro-castaneis lucidis differt.

Stemless (judging from the leaf), probably flowering well over 1 meter high; leaves 12 dm. long, densely appressed-lepidote on both sides; sheaths elliptic, ample, ca. 25 cm. long, dark castaneous toward base; blades ligulate, subacute with a thick terminal subulus, 65 mm. wide, flat, becoming glabrous with age; scape erect, at least 12 mm. in diameter, glabrous; scape-bracts erect, densely imbricate, the lower foliaceous, the upper lanceolate, acuminate, dark castaneous at base; inflorescence of two digitately arranged spikes; primary bract inconspicuous; spikes subsessile, strobilate, cylindric, 4 cm. in diameter, the lateral 18 cm. long, the terminal 27 cm.; floral bracts erect, about 8-ranked, suborbicular, 4 cm. long, somewhat striate and rugulose when dry, obscurely lepidote, red with a pale yellow apex; flowers subsessile; sepals oblong-obovate, obtuse, 22 mm. long, equally connate for 2 mm., dark castaneous, lustrous, the posterior ones obtusely carinate; petals and stamens unknown; capsules cylindric, shorter than the floral bracts; coma brown. Pl. II, fig. 1: Floral bract and calyx x 1; fig. 2: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on tree in forest, Vera Cruz, Province of Napo-Pastaza, Ecuador, altitude ca. 900 meters, February 18, 1956, by E. Asplund (No. 19474).

GUZMANIA SEPTATA L. B. Smith, sp. nov.

In systema Mezii G. compacta Mez proxima sed bracteis florigeris sepalisque acutis carinatisque differt, foliis et scapi bracteis irregulariter noduloso-septatis.

Stemless, flowering over 5 dm. high; leaves 3-4 dm. long, nodulose-septate in fine wavy cross-lines; sheaths oblong-elliptic, 13-18 cm. long, partially covered with fine brown appressed scales, dark castaneous at base, more or less red-striate above; blades ligulate, acute and subulate-apiculate, flat, 3 cm. wide, green, concolorous, glabrous; scape erect, 5 mm. in diameter; scape-bracts erect, densely imbricate, foliaceous, the upper much reduced but forming an involucre; inflorescence bipinnate, densely subglobose, 5 cm. long; primary bracts broadly ovate, the lower acuminate and covering the spikes, the upper apiculate and distinctly shorter than the spikes; spikes ellipsoid, strobilate, about 6-flowered, 25 mm. long; floral bracts broadly ovate, acute, carinate toward apex, 10-14 mm. long, equalled or slightly exceeded by the sepals at anthesis, coriaceous, even, punctulate near apex; flowers short-pedicellate; sepals elliptic, broadly acute, 13 mm. long, subequally connate for 5 mm., the lobes auricled at base, carinate at apex; petals white, naked, the blades elliptic, ca. 7 mm. long; stamens included; style exserted. Pl. II, fig. 3: Apex of leaf x 1; fig. 4: Inflorescence x 1/2; fig. 5: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected

on tree trunk, Mera, Province of Napo-Pastaza, Ecuador, altitude ca. 1100 meters, March 25, 1956, by E. Asplund (No. 19948).

ECUADOR: Napo-Pastaza: Shell Mera, alt. 900 m., March 10, 1956, Asplund 19679 (S).

GUZMANIA STRIATA L. B. Smith, sp. nov.

A G. hedychioides L. B. Smith, cui affinis, foliis caudato-acuminatis, scapi bracteis pulchre rubro-striatis, sepalis minoribus, petalis vix speciosis differt.

Stemless (judging from the leaves), flowering over 7 dm. high; leaves 8 dm. long; sheaths elliptic, 15 cm. long, appressed-lepidote, red-striate except for the castaneous base; blades linear, caudate-acuminate, 3 cm. wide at base, obscurely lepidote beneath; scape suberect, at least 7 mm. in diameter, glabrous; scape-bracts erect, imbricate, the lower subfoliaceous, the upper ovate, caudate-acuminate, strikingly red-striate; inflorescence bipinnate with 4 lateral spikes in the type, subdense, 14 cm. long; axis geniculate, rather stout, sulcate when dry; primary bracts ovate, apiculate, about half as long as the spikes, more or less striate toward apex; spikes strobilate, short-stipitate, the lateral divergent, ellipsoid, 5 cm. long, 15 mm. in diameter, the terminal cylindric, 9 cm. long, 20 mm. in diameter; floral bracts broadly elliptic, 2 cm. long, thin-coriaceous, subglabrous, faintly nerved toward apex, obscurely lepidote, red, dark-margined when dry; flowers subsessile; sepals narrowly obovate, acute, 17 mm. long, subequally short-cornate, castaneous; petals 25 mm. long, pale yellow; stamens included. Pl. II, fig. 6: Spike x 1/2; fig. 7: Flower x 1; fig. 8: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on tree in forest on shore of Rio Pastaza, Shell Mera, Province of Napo-Pastaza, Ecuador, altitude ca. 900 meters, March 27, 1956, by E. Asplund (No. 19979).

PITCAIRNIA BRONGNIARTIANA André var. LATIFOLIA L. B. Smith, var. nov.

A var. brongniartiana laminis foliorum valde latioribus, minus acuminatis differt.

Leaf-blades oblanceolate, broadly acute and apiculate, 13.5-14.5 cm. wide.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on tree in forest, Mera, towards Puyo, Province of Napo-Pastaza, Ecuador, altitude ca. 1000 meters, November 17, 1955, by E. Asplund (No. 18474).

ECUADOR: Napo-Pastaza: Epiphyte in forest near Mangayacu, Mera, alt. 1100 m., Nov. 14, 1955, Asplund 18408 (S).

PITCAIRNIA OBLONGIFOLIA L. B. Smith, sp. nov.

P. straminea Poeppig ex Mez in systema Mezii proxima sed laminis foliorum oblongis subtus rufescente lepidotis, inflorescentia glabra, sepalis acutis majoribusque differt.

Apparently stemless (extreme base lacking), flowering nearly 5 dm. high; leaves few, the outer greatly reduced and scale-like,

the inner to 3 dm. long; sheaths ovate, ca. 3 cm. long, spinose-serrate at apex; blades oblong, acute, cuneate but not petiolate, 3 cm. wide, entire, glabrous above, covered with minute rufescent scales beneath; scape erect, slender, glabrous; scape-bracts erect, lanceolate, the lowest imbricate and caudate-acuminate, the highest shorter than the internodes and apiculate; inflorescence simple, lax, 22 cm. long, glabrous; rhachis slender, slightly flexuous; floral bracts broadly ovate, apiculate, slightly shorter than the pedicels; flowers divergent, more or less secund; pedicels slender, 15 mm. long; sepals narrowly lanceolate, acuminate, 21 mm. long, ecarinate; petals over 35 mm. long, naked, red; stamens included (?); ovary over $\frac{4}{5}$ superior; ovules long-caudate. Pl. II, fig. 9: Leaf x $\frac{1}{4}$; fig. 10: Flower x 1; fig. 11: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on cliff below Piñas, Province of El Oro, Ecuador, altitude 750 meters, March 20, 1955, by E. Asplund (No. 15850).

PITCAIRNIA VIOLASCENS L. B. Smith, sp. nov.

A P. aequatorialis L. B. Smith, cui affinis, scapi bracteis internodia superantibus, floribus pallide brunneo-violascentibus, sepalis minoribus differt.

Stemless, flowering nearly 7 dm. high; leaves polymorphic, the outermost with small suborbicular dark castaneous sheaths and short linear pectinate-serrate blades, grading upward into entire bladeless elliptic sheaths, the innermost leaves functional, to 45 cm. long; blades linear, caudate-acuminate, narrowed slightly toward base but not at all petiolate, 15 mm. wide, entire, obscurely channeled, glabrous above, sparsely white-flocculose beneath; scape erect, slender, glabrous; scape-bracts erect, exceeding the internodes but covering little of the scape, lanceolate, caudate-acuminate, green; inflorescence simple, lax, 26 cm. long, glabrous; rhachis slender, slightly flexuous; floral bracts lanceolate, acuminate, to 35 mm. long, exceeding all the pedicels, subchartaceous, violaceous; flowers suberect, light brownish violet; pedicels slender, 20 mm. long; sepals lance-oblong with a prominent mid-rib, acuminate, 27 mm. long; petals arching, to 85 mm. long, broadly acute, naked; stamens included, the anthers linear, 13 mm. long; ovary over $\frac{2}{3}$ superior; ovules caudate. Pl. II, fig. 12: Flower x $\frac{1}{2}$; fig. 13: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on steep rocky slope below village, Huigra, Province of Chimborazo, Ecuador, altitude 1000 meters, February 20, 1955, by E. Asplund (No. 15471).

PUYA ASPLUNDII L. B. Smith, sp. nov.

A P. gummifera Mez & Sodiro, cui affinis, tomento brunneo subpersistente, bracteis florigeris homomorphis erectis acutis, sepalis minime asymmetricis differt.

Flowering plant to 2 meters high; leaves 6 dm. long; sheaths suborbicular, 7 cm. wide, glabrous, dull; blades narrowly triangular, pungent, 4 cm. wide, flat, glabrous and green above,

covered beneath with pale appressed scales, laxly serrate with curved antrorse or retrorse red-brown spines 7 mm. long; scape unknown; inflorescence subdensely bipinnate, except for the petals densely and rather persistently brown-lanate; primary bracts broadly ovate, apiculate, several times shorter than the branches, coriaceous, blackish brown and more or less rugose when dry, dull, entire; spikes subsessile, strobilate, subglobose or ellipsoid, the lateral ones 6-8 cm. long; floral bracts like the primary bracts but broadly acute, 25 mm. long, attaining about the mid-point of the sepals; pedicels stout, to 7 mm. long; sepals obovate, rounded and more or less retuse, 23 mm. long, like the bracts in texture and color; petals over 5 cm. long, obtuse, naked, green. Pl. II, fig. 14: Floral bract and flower x 1/2; fig. 15: Sepal (inside) x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected on rocky slope, Cuicocha, Province of Imbabura, Ecuador, altitude ca. 3150 meters, April 10, 1956, by E. Asplund (No. 20222).

The description of Puya gummifera makes no mention of the primary bracts, but material which agrees with it much better than P. asplundii has serrate primary bracts. Although there are slight differences in the form of the sepals I am tentatively including the following in P. asplundii:

ECUADOR: Pichincha: In a quebrada near "Cruz Verde," Firmin 412 (US). Azuay: Scattered on grassy hills of paramo, between Oña and Cuenca, alt. 2700-3300 m., Hitchcock 21646 (US). Azuay-Cañar: Between Cuenca and Huigra, alt. 2700-3000 m., Hitchcock 21675 (US).

TILLANDSIA ARGUTA L. B. Smith, sp. nov.

A T. pyramidata André, cui affinis, inflorescentia densa, spicis strictis, bracteis florigeris argute carinatis, sepalis anguste lanceolatis differt.

Stemless, flowering 12-15 dm. high; leaves 5-7 dm. long; sheaths large, broadly elliptic, tinged with dark purple; blades ligulate, acuminate, 6 cm. wide, flat, glaucous green with purple splotches, soon glabrous above, densely cinereous-lepidote beneath; scape erect; scape-bracts erect, densely imbricate and wholly covering the scape, the lower subfoliaceous, the upper lanceolate, red; inflorescence densely bipinnate, clavate or cylindric, glabrous except for the obscurely lepidote apices of the bracts, red except for the corollas; primary bracts ovate, acute, 5-6 cm. long; spikes linear, acute, strongly complanate, 9-29 cm. long with the larger ones higher, 2 cm. wide, densely many-flowered; floral bracts ovate, acute or acuminate, 25-35 mm. long, always exceeding the sepals, very sharply carinate, coriaceous, smooth, lustrous; pedicels 2 mm. long; sepals free, narrowly lanceolate, acute, 20-23 mm. long, the posterior ones sharply carinate; petals linear, 30 mm. long, naked, the blade lavender; stamens included, the filaments straight; capsule cylindric, about equaling the sepals. Pl. II, fig. 16: Spike x 1/2; fig. 17: Sepal x 1.

Type in the U. S. National Herbarium, Nos. 1,985,891 to

1,985,893, collected on tree in cloud forest at kilometer 50, between Cuenca and Oña, Province of Azuay, Ecuador, altitude 3900 meters, December 4, 1948, by M. B. Foster (No. 2619).

ECUADOR: Azuay: Ganadel, alt. 3050 m., November 23, 1955, E. Asplund 17713 (S). Azuay-Canar: On tree, between Cuenca and Huigra, alt. 2700-3000 m., Sept. 12-13, 1923, A. S. Hitchcock 21676 (GH, NY, US).

TILLANDSIA ASPLUNDII L. B. Smith, sp. nov.

A T. delicatula L. B. Smith, cui affinis, inflorescentia bipinnata, sepalis subduplo majoribus bracteis florigeras ecarinatas distincte superantibus differt.

Stemless (judging from the broad leaves), flowering 75-95 cm. high; leaves 35-50 cm. long; sheaths broadly elliptic, 12-15 cm. long, very dark but covered with a glaucous coat of thin appressed whitish scales; blades ligulate, flat, broadly retuse and apiculate, 60-65 mm. wide, green and soon glabrous above, densely purple-spotted and subdensely pale-lepidote beneath; scape erect, slender, glabrous; scape-bracts strict, elliptic, all but the lowest imbricate, thin; inflorescence amply and laxly bipinnate, glabrous, red with yellow flowers; primary bracts lance-ovate, acute, to 5 cm. long, much shorter than the branches; branches subspreading, to 13 cm. long including the very short naked sterile base, lax, the rhachis slender, flexuous; floral bracts ovate, acute, 15 mm. long, always exceeded by the sepals, thin, prominently nerved, ecarinate; flowers spreading; pedicels slenderly obconic, 4 mm. long; sepals narrowly obovate, obtuse, 15 mm. long, equally short-connate, ecarinate; petals 20 mm. long; stamens included. Pl. II, fig. 18: Spike x 1/2; fig. 19: Sepal x 1.

Type in the Naturhistoriska Riksmuseum, Stockholm, collected in rastrojo near Alpayacu, Mera, Province of Napo-Pastaza, Ecuador, altitude 1050 meters, February 8, 1956, by E. Asplund (No. 19279).

ECUADOR: Napo-Pastaza: Epiphytic in rastrojo, Shell Mera, alt. 900 m., April 3, 1956, Asplund 20123 (S).

BOLIVIA and ARGENTINA

VRIESIA MAXONIANA (L. B. Smith) L. B. Smith, comb. nov.

Tillandsia maxoniana L. B. Smith, Contrib. Gray Herb. 124: 11, pl. 2, figs. 1-3. 1939; Lilloa 14: 99. 1948.

Vriesia icterica Castellanos, Lilloa 11: 150. 1945; Gen. & Sp. Pl. Argent. 3: 249, pl. 70. 1945.

BOLIVIA: La Paz: Nor Yungas: Subtropical region, Polo-Polo, near Corico, alt. 1100 m., 1912, Buchtien 4538 (US, type; phot. GH). Santa Cruz: Florida: Mountain woods of Samaipata (Achiras), alt. 1500 m., Steinbach 8221 (GH).

ARGENTINA: Salta: Orán: Finca San Andres, Maromas, alt. 900 m., Aug. 1, 1944, Castellanos (LIL 110,320, type of Vriesia icterica Castellanos). Río Iruya, San José, Willink 325 (LIL). Yariaguarenda, Las Piletas, Schulz 5105 (LIL).

Plate I

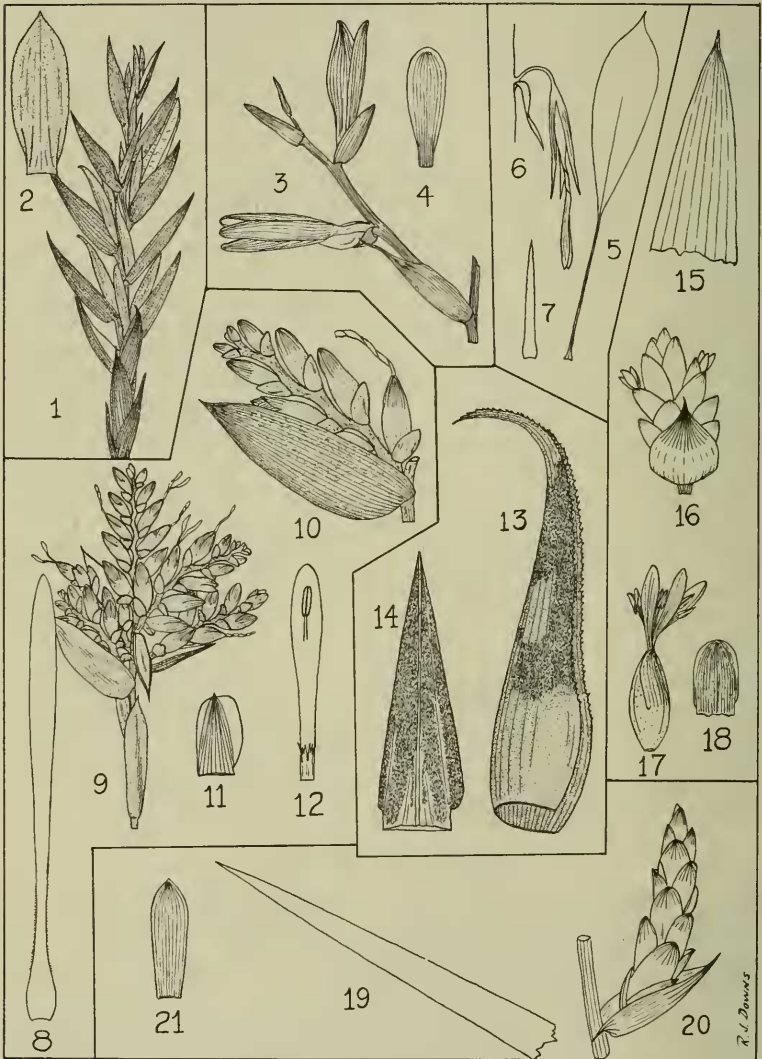


Fig. 1, 2: *Tillandsia ariza-juliae*; fig. 3, 4: *Guzmania delicatula*; fig. 5-7: *Pitcairnia sneidernii*; fig. 8-12: *Aechmea abbreviata*; fig. 13-14: *Ae. strobilacea*; fig. 15-18: *Guzmania aequatorialis*; fig. 19-21: *G. asplundii*.

Plate II

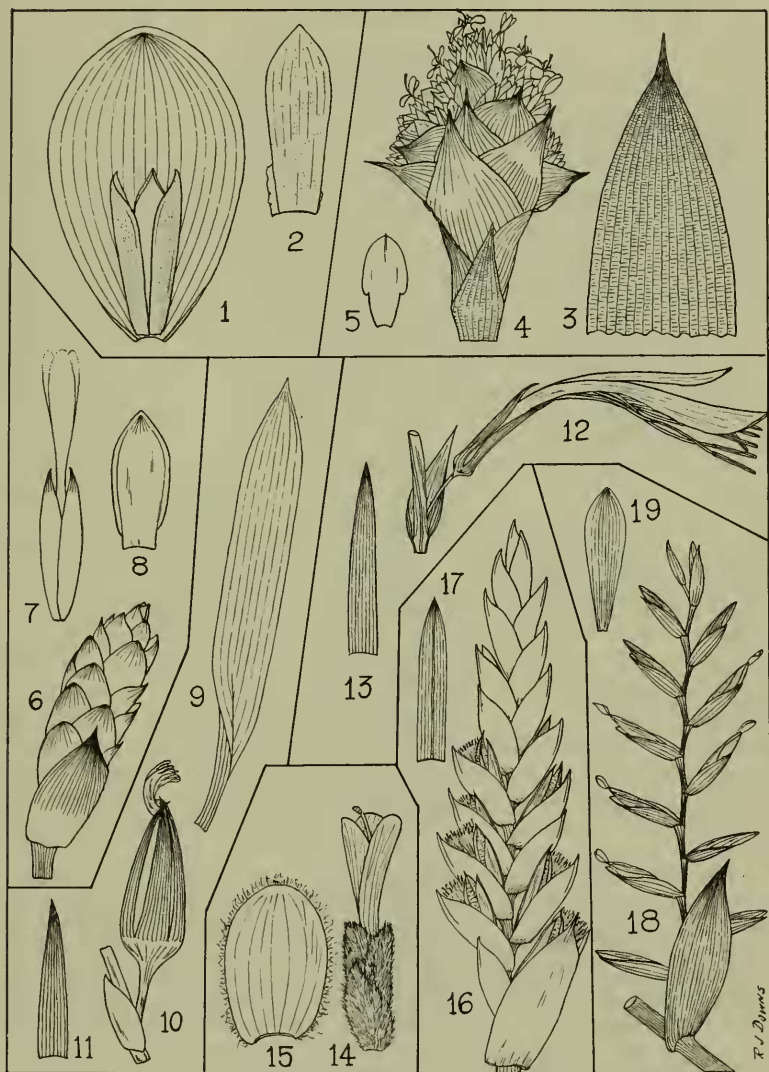


Fig. 1, 2: *Guzmania bipartita*; fig. 3-5: *G. septata*; fig. 6-8: *G. striata*; fig. 9-11: *Pitcairnia oblongifolia*; fig. 12, 13: *P. violascens*; fig. 14, 15: *Puya asplundii*; fig. 16, 17: *Tillandsia arguta*; fig. 18, 19: *T. asplundii*.